



FESPBalert

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FESPB Congress

NOTIFICATION OF INTENTION TO PARTICIPATE IN THE

14TH FESPB CONGRESS



You can register your intention to participate in the Congress until Sunday 22 August 2004

Deadline for early registration is March 31, 2004.

Later registrations will be surcharged by 20%.

To register for the Congress please use one of the two following methods

Method 1. REGISTRATION VIA THE INTERNET:

Registration via the Internet is open until Sunday 22 August 2004

This procedure allows you to sign up with the Congress domain www.ifr-pan.krakow.pl/konf/ and notify us of your intention to participate. Please click on to the 'Congress Registration' tab on the home page. This procedure allows you to create a personal profile and become a registered user of the website and the FESPB Congress Database. The system identifies each user by their username (combination of a login and a password) generated by you when first registering via the Internet. Once you have registered you can view the whole of the website and use the on-line services designed to facilitate FESPB Congress administrative procedures (accommodation, abstract submission, etc.). It assures secure data transmission especially in case of financial information (account or credit card numbers etc.).

Method 2. USING THE FIRST or SECOND ANNOUNCEMENTS

The First Announcement has already been widely distributed. If you did not received a copy, please write to the FESPB Congress Office (address is given below) and ask for the Pre-Registration Form to be sent to you. Alternatively, you may download the Form directly from the website. Having filled it in, please send it back by fax or by post to the FESPB Congress Office. The System Administrator will then add you to the official list of the FESPB Congress Participants and to the FESPB Congress Database. Congress registrations using the Pre-Registration forms printed in the First Announcement will be accepted only until March 31, 2004

We ask that the Pre-Registration is validated by the official stamp of your institution/company or your signature but in case of those who have retired, a stamp is not compulsory.

USING THE SECOND ANNOUNCEMENT

The Second Announcement will be widely distributed starting from October 2003. You can notify us of your intention to participate in the Congress by completing the Registration Form included in this Second Announcement. The Registration Form must be submitted together with appropriate fees

FESPB Congress Secretariat

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Research news

Relics: Plant fragments date land invasion (pp282-285; N&V)

Debate about the date of a momentous event in Earth's history — invasion of the land by plants — may have been resolved, thanks to the discovery of tiny fossilized plant fragments. The findings, reported in *Nature* by Wellman *et al.*, suggest that the earliest land plants arose at least 475 million years ago, adding 50 million years to previous estimates.

The evidence of these first land plants is in the form of microscopic spores trapped in 443–495-million-year-old rocks that are much older than the earliest remains of the plants themselves. Although these spores also resemble those of aquatic algae, undermining any claim about timing of land-plant origins based on this evidence alone. Sieving through rocks in Oman, Wellman and colleagues unearthed ancient fragments of what proved to be miniscule land plants containing large numbers of spores identical and of a similar age to those found previously. Analysis of the spore wall ultra structure led the team to conclude that these plants were similar to present-day liverworts.

EU forecasts crop losses caused by drought

The Commission's Joint Research Centre (JRC) has used its advanced crop yield forecasting system to predict the effects of the persisting drought on this year's harvest in the European Union. The expected drop in the main crop yields ranges from about 2% for potato to 25% for sunflower at EU level. The loss in wheat production will be approximately 10 million tonnes compared to the previous agricultural campaign.

From the analysis of the JRC crop indicators it emerges that this year's extreme weather conditions diminish the quantity and quality of the harvests particularly in central and southern Europe's agricultural areas. The winter crops suffered from the effects of a harsh winter and late spring frost. The heat wave starting as early as June caused the crops to develop in advance by 10

to 20 days anticipating ripening and maturity stages. Thus winter-spring cereals entered into grain filling stages under insufficient soil moisture conditions. The very high values of air temperature and solar radiation in the second part of July and beginning of August, resulted in a notable increase of the crops' water consumption. This, together with the summer dry spell, resulted in an acute depletion of the soil water reservoirs available to the crops. Since April 2003 the climatic water balance indicator (which represents the balance between water supply from rainfall and the crops' water requirements) shows a significant deficit in the majority of the Member States (excluding only the northern countries: Denmark, Finland, Ireland, Sweden and U.K.).

Yield forecasts, issued in August, were as follows:

Total Wheat (including soft wheat and durum wheat varieties): expected to be lower by 6.6% as compared to last year. The most affected countries contributing to the low European yields are France (about 9% below average results), Germany (7% below average), Italy (12.3% below average) and Portugal (15% below average).

Grain Maize: expected to be lower by 10.1% as compared to last year.

Rape Seed: The European yield will be lower than average by about 6.6% (2.9 t/ha instead of 3.1 t/ha), with Germany and France expected to have yields 11% and 10% lower than average. The crop suffered from the April late frost, during flowering, and from lack of rain during its ripening period.

Sunflower: expected to be 25.0% lower as compared to last year. The areas most affected will be Spain and Italy.

Sugar Beet: expected to be lower by 7.2% as compared to last year, although the sugar content should be higher. Areas of production around the English Channel and the North Sea appear to be the least affected.

Potato: expected to be lower by 2.0% as compared to last year.

The crop yield results at Pan-European level and a full description of the methodology are available at <http://mars.jrc.it/stats/bulletin> and at <http://www.marsop.info>

Engineering of increased vitamin E

Scientists have engineered plants with increased levels of vitamin E, which is deficient in 25% of the US population and is important for prenatal health and a decreased risk of heart disease. Identification of genes from barley, rice and wheat responsible for the synthesis of tocotrienols, members of the vitamin E family, opens the door to boosting the level of this vitamin in food crops.

Cahoon and colleagues have isolated the HGGT genes, which encode enzymes that play a key role in tocotrienol synthesis. Overexpression of the barley enzyme in *Arabidopsis* enhances total vitamin E content (tocotrienols plus the other major form, tocopherols) ten- to fifteen fold. In corn seed, levels

were increased as much as six fold. The results demonstrate the feasibility of engineering increased vitamin E levels in plants using this enzyme.

Vitamin E is the generic term for any of eight naturally occurring forms of tocotrienols and tocopherols. The synthesis of tocopherols has been well characterized in plants, whereas the pathway that leads to tocotrienols has not been extensively studied. The results of Cahoon and co-workers provide the first evidence for the synthesis of tocotrienols in plants through the HGGT-catalyzed pathway. Although the work represents a breakthrough for boosting levels of certain tocotrienols, which are powerful antioxidants, further work is needed to produce plants containing dietary forms of the vitamin. Finally, manipulation of these genes could also lead to plants that are more resistant to oxidative stresses.

Glyphosate may encourage blight

Canadian scientists have evidence that glyphosate may increase the risk of fungal infections in wheat. This would be a major blow for backers of genetically modified wheat in Canada, because the first GM variety up for approval in Canada is modified to be glyphosate-resistant. The potential problem was spotted a few years ago by Myriam Fernandez of the Semiarid Prairie Agricultural Research Centre, Saskatchewan. She noticed that in some fields where glyphosate had been applied the previous year, wheat appeared to be worse affected by fusarium head blight. In a follow-up study, Fernandez measured levels of the blight in wheat fields. "We found higher levels of blight within each tillage category when glyphosate had been used in the previous year," says her colleague Keith Hanson. His lab study also showed that *Fusarium graminearum* and *F. avenaceum*, the fungi that cause head blight, grow faster when glyphosate-based weedkillers are added to the nutrient medium. The team is now planning field and greenhouse trials.

Hanson stresses that the real issue is whether the fungi leave more spores in the soil. It is also possible that the effect is simply due to herbicides leaving more dead plant matter in the soil for fungi to grow on and is not directly caused by glyphosate. Field studies should provide answers next spring.

Ironically, Syngenta, another biotech giant, based in Basle, Switzerland, has been developing and testing both genetically modified and conventional wheat strains that are resistant to the *fusarium* head fungi.

Farm Scale Evaluations published

The publication on 16th October of the results of the Farm Scale Evaluations (FSEs) in *Philosophical Transactions: Biological Sciences*, a journal of the Royal Society, reveals significant differences in the effect on biodiversity when managing genetically modified herbicide-tolerant (GMHT) crops as compared to conventional varieties. The study emphasises the importance of the weeds within crops in sustaining natural communities within and adjacent to farmers' fields.

About 60 fields each were sown with beet, maize and spring oilseed rape. Each field was split, one half being sown with a conventional variety managed according to the farmer's normal practice, the other half being sown with a GMHT variety, with weeds controlled by a broad-spectrum herbicide (glufosinate-ammonium in maize and spring oilseed rape, and glyphosate in beet). Comparisons in biodiversity were made by looking at the levels of weeds and invertebrates, such as beetles, butterflies and bees, in both the fields and the field margins immediately surrounding them.

A total of eight papers are published – two looking at the effects on weeds in the fields, two looking at the effects on invertebrates in the fields, one looking at weeds and invertebrates in the field margins and one looking at the effect of the contrasting herbicide regimes on both weeds and invertebrates as a whole. Another looks at the background to the study and the rationale for its design and interpretation and a final paper compares the management of the crops in the study with current conventional commercial practice to provide readers with contextual information against which the results should be considered.

Effects on weeds in fields (1,2)

The study showed significant and variable impacts of GMHT cropping in beet, maize and spring oilseed rape on the arable weeds when compared to current commercial practices. In GMHT beet and oilseed rape crops more effective weed control lead to the decline of the number of weed seeds left in the soil at the end of each growing season (known as the seedbank). Although this has been going on in cropped fields in Britain for many decades it could be accelerated by the management associated with these particular crops. In contrast, GMHT maize showed the opposite effect. Typically conventional maize has lower weed burdens because of the widespread use of persistent herbicides – the herbicide regimes used on the GMHT maize were not as effective at controlling the weeds.

In beet and oilseed rape, the densities of weeds shortly after sowing were higher in the GMHT treatment. This effect was reversed after the first application of broad-spectrum herbicide in the GMHT treatments. By the end of the season, the weight of weeds collected from a fixed area (biomass) and number of weed seeds falling to the soil (seed rain) in these GMHT crops were between one-third and one-sixth those of conventional treatments. The changes in seed rain affected the seedbank, resulting in seed densities about 20% lower in the GMHT treatments.

In maize the effect was different. Weed density was higher throughout the season in the GMHT treatment. Biomass was 82% higher and seed rain was 87% higher than in conventional treatment. However, this had no detectable effect on the seedbank as total seed return was low after both treatments. Twelve of the most common weed species in the UK were examined. The biomass of six species in beet, eight in maize and five in oilseed rape was significantly affected. Generally, biomass was lower in GMHT beet and oilseed rape and higher in GMHT maize. Significant effects on seedbank change were found for four species of weed. However, for many species in beet and oilseed rape (19 out of 24 cases), seed densities were lower in the seedbank after GMHT cropping. These differences, if compounded over time, could result in

large decreases in population densities of arable weeds. In maize, populations may increase.

Effects on invertebrates in fields (3,4)

Differences in GMHT and conventional crop herbicide regimes had a significant effect on the capture of most surface-active invertebrate species and larger groupings (higher taxa) in at least one crop, with most increases occurring in GMHT maize and most decreases occurring in GMHT beet and oilseed rape. One species of carabid beetle that feeds on weed seeds was less frequent in GMHT beet and oilseed rape, but more frequent in GMHT maize, showing how the numbers in some invertebrates tracked the amounts of food available to them.

Most higher taxa of invertebrates active on weeds and in the litter layer were little affected by the treatment. However, smaller numbers of butterflies were recorded in GMHT oilseed rape and smaller numbers of bees, butterflies and Heteroptera ('true bugs') were found in GMHT beet.

However, in all crops under GMHT management there were significantly more Collembola, a type of detritivore known as a 'springtail', which feeds on dead and decaying weeds. This is because the herbicides were applied later in the GMHT crops, and so weeds tended to be larger when killed, providing more food for these insects.

Effects on weeds and invertebrates in field margins (5)

Three components of field margins were sampled: the uncropped tilled area, the field verge (the grassy strip between the tilled land and the fence or hedgerow that forms the actual field boundary) and the boundary itself. In oilseed rape, the cover, flowering and seeding of plants were 25%, 44% and 39% lower, respectively, in the GMHT tilled margin. For beet, flowering and seeding were 34% and 39% lower in the GMHT margins. For maize, the effects were reversed, with plant cover and flowering 28% and 67% greater in the GMHT half. These results corresponded to the effects on weeds within the crops, because these plants had also been affected by the herbicide. Fewer, smaller effects were found in the verges and boundaries, and levels of herbicide damage were low.

24% fewer butterflies were counted in margins of GMHT oilseed rape, reflecting differences in the amount of flowers available. Few differences were found for bees, slugs and snails, or other invertebrates sampled in the field margins.

Effects on plants and invertebrate trophic groups (6)

The effect of GMHT cropping on the interaction between invertebrates with different feeding habits was studied by examining the relations between plants and the abundance of insects grouped according to their feeding preferences (trophic groups). The negative effect of GMHT cropping on weeds in beet and spring oilseed rape, and the positive effect in maize, resulted in similar changes higher up the food chain.

Where the weed flora was less abundant, there were fewer herbivores, pollinators and natural enemies (the insects which prey on the herbivores). Detritivores increased under GMHT management across all crops due to the greater input, later in the season, of dead weeds on which they feed. Compared to large differences through the season and between crop species,

GMHT management imposed relatively small (less than twofold), but consistent, differences in the abundance of most trophic groups. The direction of change depended on how effective the herbicide was compared to conventional management.

Rationale and interpretation (7)

This paper provides the background information that was analysed to guide and interpret the FSEs. Previous surveys of soil, vegetation and field management were used to ensure that the chosen fields were typical and representative of commercial practice. Knowledge of the plants and invertebrates, and their sensitivity to the GMHT crop and herbicide, was used to guide the sampling plans applied to each field-half. Historical and recent changes in the buried, living weed seeds – the seedbank – were used to assess the initial diversity of sites and the longer term trends that might result from growing GMHT crops. Re-interpreting field experiments from the 1990s indicated that changes in management practice may cause large differences in biodiversity (e.g. a 50% difference). The experiment was designed to ensure that such differences between conventional and GMHT management would be detectable.

Crop management and wider UK context (8)

It was important that the crop management systems on the studied sites reflected the activities of farmers in the UK countryside. The locations of field sites and intensities of cropping had to represent the range found in the UK and this was found to be the case.

The amounts of herbicide used, and when it was applied, were recorded and compared well with current commercial practice for conventional crops, and the industry-recommended guidelines for application to GMHT crops.

Comparison of the amounts of herbicide applied with the density of weeds showed that farmers applied more herbicide when the density increased in beet and maize. Generally GMHT crops were found to receive less herbicide, later in the season, than the conventional crops.

Commenting on the results, Dr Les Firbank, Centre for Hydrology and Ecology, Merlewood, and co-ordinator of the project that submitted the papers, said:

“The results of these Farm Scale Evaluations reveal significant differences in the effect on biodiversity when managing genetically herbicide-tolerant (GMHT) crops as compared to conventional varieties. The study emphasises the importance of the weeds growing among crop plants in sustaining natural communities within, and adjacent to, farmer’s fields.”

“One of the key points to remember is that the results are only applicable to the three crops studied, and only under the regimes of herbicide usage which were employed. Each new application of GM crop technology must be looked at on a case-by-case basis, using a rational evidence-based approach.”

References:

- Weeds in fields with contrasting conventional and genetically modified herbicide-tolerant crops. I. Effects on abundance and diversity.*
Weeds in fields with contrasting conventional and genetically modified herbicide-tolerant crops. II. The effects on individual species.

Invertebrate responses to the management of genetically modified herbicide-tolerant and conventional spring crops. I. Soil-surface-active invertebrates. Invertebrate responses to the management of genetically modified herbicide-tolerant and conventional spring crops. II. Within-field epigeal and aerial arthropods.

Invertebrates and vegetation of field margins adjacent to crops subject to contrasting herbicide regimes in the Farm Scale Evaluations of genetically modified herbicide-tolerant crops.

Responses of plants and invertebrate trophic groups to contrasting herbicide regimes in the Farm Scale Evaluations of genetically modified herbicide-tolerant crops.

On the rationale and interpretation of the Farm Scale Evaluations of genetically modified herbicide-tolerant crops.

Crop management and agronomic context of the Farm Scale Evaluations of genetically modified herbicide-tolerant crops.

Other news

Free content in Annals of Botany

It is clear from conversations with FESPB members, especially those from eastern Europe that access to papers in plant science journals is a problem because their institution does not subscribe to some of the relevant journals. However, it is not always realized that many journals allow on-line access to a varying and often extensive amounts of information free-of-charge. In future **FESPBA**Alerts, I intend to examine what various journals make available from their home pages without charge. Since I am currently the Chief Editor of *Annals of Botany* I begin by reviewing what can be accessed free of charge from this journal starting from its home page: (www.aob.oupjournals.org).

Abstracts: Abstracts of all papers are available to non-subscribers together with links to papers in article databases such as PubMed and Agricola.

Botanical Briefings: These short reviews are published in most issues on subjects of current interest. The latest article, and all previous articles dating back to 1996, are available in PDF or full text format. Some recent titles include:

Regulation of Jasmonate-mediated Plant Responses in Arabidopsis by ALESSANDRA DEVOTO and JOHN G. TURNER

Cross-talk in Plant Hormone Signalling: What Arabidopsis Mutants Are Telling Us by SONIA GAZZARRINI and PETER MCCOURT

Populus: Arabidopsis for Forestry. Do We Need a Model Tree? By GAIL TAYLOR

Glutamate Receptors in Plants by ROMOLA DAVENPORT

Full-length papers more than 1-2 years previously: Non-subscribers can access PDF and full text version of all articles more than 1-2 years old.

AOBPreview: Free access to abstracts of papers two weeks in advance of publication in print.

AOBAAlert: Free access to titles, authorship and e-mail contact addresses for accepted papers prior to their release in **AOBPreview**.

E-mail a friend service: facilitates e-mailing details of any article published in *Annals of Botany*.

Free sample issue on-line: A full issue (normally the current months issue from the previous year) can be requested and is delivered instantly after completing a short questionnaire.

Monthly Table of Contents alert: A monthly list of papers in the current issue can be sent automatically after requesting the service from the home page.

ContentSnapshots: Sixty-word illustrated synopses of all papers are available to non-subscribers

ContentSelect: Half-page illustrated summaries of four outstanding papers from each issue are available to non-subscribers.

Mike Jackson, chief editor, Annals of Botany

Swedes more favourable towards genetic engineering, but not GM foods

Results from a major European survey suggest that two out of three Swedes now accept genetic engineering. This makes Swedes the people with the most favourable views in the EU. "On the other hand, Swedes are the first among EU citizens to protest the right of social insurance offices and insurance companies to gain access to the genetic make-up of individuals," said Susanna Öhman, at Mid Sweden University. Interviews, carried out in 1996, 1999 and 2002 showed the most positive attitudes among Swedes regard genetic testing to discover hereditary diseases and cloning of stem cells to replace sick cells in patients with Parkinson's disease or diabetes, for example.

Genetically modified foods are the only application that Swedes reject outright, although if GM food contained less pesticide than other food, half of those interviewed would consider buying the product. Those who are most critical of genetic engineering are younger, well-educated women who live in cities, are knowledgeable about genetic engineering, and have left-of-centre political views. They see genetic engineering as an environmental problem. There is also a large critical group of poorly educated middle-aged and elderly men and women, not seldom religious, living in small towns. They have conservative values and see genetic engineering as a violation of the order of nature.

Austrian *Arabidopsis* research

Austrian research projects aimed at improving understanding of plants and their interaction with the environment are now being coordinated through the Austrian Platform of Arabidopsis Research (APAR). The initiative for the formation of APAR - a consortium of five Austrian research groups at three different institutes - came from the 2001 Wittgenstein Prize winner, Professor Heribert Hirt. The move has opened the way for Austrian scientists to play a major role in a multinational research programme, the Multinational Arabidopsis Steering Committee (MASC) of which Hirt is the only Austrian member.

Image and Text: <http://www.fwf.ac.at/en/press/plant.html>

Positions available

Full details of these positions are posted on the FESPP website on the Jobs and Studentships pages (<http://www.fespp.org/jobs.asp>)

Plant Biology MSc programme

Plant Biology at Utrecht University runs a two-year MSc programme that trains and educates plant biologists at a high academic level. Masters students will, individually or in a team, be challenged to solve fundamental and applied plant biological problems. To this end students are shown the most modern experimental and mathematical methods and techniques. Furthermore, students will also learn to apply molecular and genetical tools to a wide range of biological problems.

All courses and practical training are given in English by a team of internationally distinguished scientists.

More information on the programme and registration can be found on the flyer or on the website www.bio.uu.nl/plantbiology

Forthcoming meetings

Plant Molecular Biology Programs and Perspectives in an Enlarged Europe

Warsaw, 21 - 23 November

A 3-day Meeting on "Plant Molecular Biology Programs and Perspectives in an Enlarged Europe", aiming to promote collaboration between countries of western, eastern and southern Europe. The subjects to be covered are:

1. Plants and environment (plant-microorganism interactions and abiotic stress, phytoremediation)
2. Plant metabolism and multi-level controls
3. Plants as source of food, industrial material and renewable energy (e.g. food quality, biofuels, pharmaceuticals)
4. Acceptance of plant biotechnology

The Meeting will be held at the Institute of Biochemistry and Biophysics, Polish Academy of Sciences, Pawinskiego 5a, 02-106 Warsaw, Poland.

A registration fee of 110 Euros will be requested. This includes attendance to the lectures and meals (except breakfasts). Students from Central and Eastern European countries can apply for a reduced registration fee. For hotel accommodation and for further information, please contact the secretary Magda Berlinska, tel/fax +48 (22) 823 7189, e-mail cemb@ibb.waw.pl

REGISTRATION FORM

Three-day, On-hand Workshop
Plant Molecular Biology Programs and Perspectives in an Enlarged Europe
November 21 -23, 2003. Warsaw, POLAND

Last nameFirst name Position

Institution

Address

..... Country

Phone Fax e-Mail

Date of arrival in Warsaw

Date of departure

Additional information

To be sent preferably by e-mail (cemb@ibb.waw.pl)

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.....
.....

N.B. Please verify whether you need a passport (and visa) to enter Poland

Anti-inflammatory and anti-infective natural products

London (UK), 15- 16 December

Contact: Michael Heinrich; heinrich@cua.alsop.ac.uk

7th International Symposium on Inorganic Nitrogen Assimilation in Plants

Wageningen, The Netherlands June 23-27, 2004

The aim of the series of Symposia organised by the European Nitrate and Ammonium Group (ENAAG) is to present our current knowledge and ideas on further development of the molecular, biochemical, physiological, ecophysiological and agronomical aspects of inorganic nitrogen assimilation. The 7th Symposium is aimed at integrating the fundamental disciplines with the more applied aspects.

<http://www.enaag.org>

International Satellite Meeting in honor of Prof. Norio Murata

Trios-Rivieres, Quebec, Canada. August 25-28, 2004

The title of the meeting is: "Photosynthesis and Post-Genomic Era: From Biophysics to Molecular Biology, a Path in the Research of Photosystem II",

The web address is <http://www.nibb.ac.jp/~satellit/top>

10th Cell Wall Meeting

Sorrento, Italy. 29 August – 3 September 2004

This is the **first announcement** for the 10th Cell Wall Meeting that will be held in Sorrento, Italy, in August-September 2004. The aim of the Cell Wall Meeting is to bring together scientists whose research deals with any aspect of plant cell walls. As in the past, the meeting is completely open and there are no invited speakers. The organisers are committed to keeping the registration costs as low as possible to encourage especially students and young research scientists to attend the meeting. We also encourage industrial participation in order to establish links between cell wall research and potential downstream applications.

Registration will be on Sunday, August 29; talks will start on Monday.

Poster sessions will be held throughout the meeting.

Useful web sites

Photosynthesis

<http://www.explorellearning.com/science/Photosynthesis/>

ExploreLearning uses interactive software models to portray complex mathematical interactions. The treatment of photosynthesis explores relationships between light intensity, light colour and carbon dioxide with oxygen production. It is suitable for beginning students. The results are shown on tables (as raw data) and plotted on graphs. The theoretical basis of the work is also explained. Results can be copied and saved in a word or graphics file. ExploreLearning requires Macromedia Flash Player.

ARKive - Images of Life on Earth

<http://www.arkive.org/>

ARKive is a "Noah's Ark for the Internet era". It has the goal of archiving web-accessible information on 11,000 species threatened with extinction. This amounts to a centralized digital library of films, photographs and data about endangered species - plants as well as animals. The site a continually expanding and enduring audio-visual record of high quality and impressive depth of materials available. ARKive is a not-for-profit initiative of The Wildscreen Trust based in Bristol, UK. There are also sister sites: Planet ARKive (for children 9-10 years old) and ARKive Education (for parents and teachers).

Bioinformatics.Org

<http://bioinformatics.org/>

Bioinformatics.Org is an international organization promoting freedom and open exchange of data, databases, software and supporting resources relative to particular types of biological information. Bioinformatics includes all computer and supporting technologies involved in the analysis and use of the complex life sciences data available from molecular biology studies. This website is a central component in Bioinformatics.Org's goal is to provide "...access to cutting-edge resources can be prohibitively expensive for those working individually, in small groups, at poorly-funded institutions or in developing nations."

FESPB News

KEY DATES FOR THE 14th CONGRESS (Krakow, Poland)

February 2003.....First Announcement and registration open

October 2003..... Second Announcement

March 31st, 2004..... Deadline for early Registration

March 31st, 2004.....Deadline for submission of Abstracts

FESPB Web Forum

The FESPB Web Forum is a much neglected feature of the FESPB web site. It has been set up in a way that allows letters to be posted for everyone to read and for any replies to be appended to letter so that again everyone can read it..

Items for FESPAlert

If you have items, job opportunities or information you think FESPP members would like to see in *FESPAlert* or have any comments on content please e-mail me pjlumsden@uclan.ac.uk

The source of this *FESPAlert* is

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